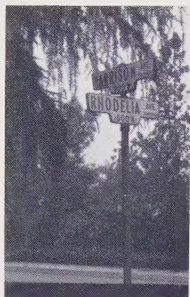


Early Action Program Design



1. Rhodelia Avenue Unsewered Community



2. Management of the Sewage Sludge in the San Diego Creek Watershed Area



3. Management of Dairy Wastes in the Ontario—Chino—Corona Area

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

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(FINAL DRAFT)
208 EARLY ACTION
PROGRAM DESIGN

January 20, 1978

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*water quality management -
CA, Southern*

Note: This report has received concept approval during December, 1977 for public release by the 208 Citizens Advisory Committee, the 208 Program Committee, the SCAG Environmental Quality and Resource Conservation Committee and the SCAG Executive Committee. Its contents are subject to change resulting from public review and comment.

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INTRODUCTION AND EXECUTIVE SUMMARY

The Early Action Program Design is a major component of the 208 Areawide Waste Treatment Management Planning Program being undertaken by the Southern California Association of Governments (SCAG) and eight "participating" agencies - the City of Los Angeles, the Counties of Los Angeles, Orange, Riverside, and San Bernardino, the Newport-Irvine Waste Management Planning Agency, the Santa Ana Watershed Project Authority, and the Ventura Regional County Sanitation District. The purpose of the Early Action Program as outlined in SCAG's 208 Work Plan of October 4, 1976, is to initiate solutions to select water quality problems prior to completion of a final 208 water quality plan in November 1978. While the final 208 plan will address a range of water quality problems in the South Coast Area, the Early Action Program addresses a few prototypical problems. The selected early action problems are intended to be representative of water quality problems in the South Coast area. The Early Action Program is designed to demonstrate that the 208 planning process can be made operational through the existing institutional structure.

SCAG's 208 Work Plan provided a list of "candidate" water quality problems for which Early Action programs potentially could be developed. From this list, seven problems were selected by the participating agencies and SCAG for further consideration. Endorsements of these seven problems were received from the Regional Water Quality Control Boards and the three SCAG Committees which oversee the 208 effort - the 208 Program Committee, the Environmental Quality and Resource Conservation Committee, and the Citizens Advisory Committee. Of the seven problems, it was determined that implementation could be initiated for three of the problems before November, 1978. The three selected water quality problems are listed in Table 1.

Table 1

Representative Water Quality Problems for Early Action and Resolution

<u>Agency</u>	<u>Problem</u>
County of Los Angeles	Groundwater quality impairment from unsewered communities
Newport-Irvine Waste-Management Planning Agency (NIWA)	Transport of pollutants by runoff from sewage sludge disposal fields
Counties of Riverside and San Bernardino and Santa Ana Watershed Project Authority (SAWPA)	Institutional needs for the management of dairy wastes in the Ontario-Chino Corona area

The Early Action Program Design provides a description of each of the three water quality problems a comparison of alternative management strategies, a recommendation for action and an outline of implementation schedules and costs. A summary of each Early Action problem is presented below.

Unsewered Communities - Los Angeles County

Fifty-one unsewered communities in Los Angeles County were identified. One community surrounding Rhodelia Avenue, located adjacent to the City of Claremont and overlying the heavily nitrate-laden Pomona Groundwater Subbasin, was found to meet the criteria for Early Action. Occasional septic tank overflows have occurred, presenting a possible health hazard through body contact. Both the Los Angeles County Health Officer and the Regional Water Quality Control Board (Los Angeles Region) have recommended the installation of sewers, and a majority of local homeowners have also petitioned for the installation. However, the project has been in abeyance due to a requirement by the Local Agency Formation Commission (LAFCO) for annexation of the community to the City of Claremont. Provision under a new law (Assembly Bill 1533) allowing for annexation without an election may overcome these institutional barriers to sewerage.

Sewer Sludge Management - San Diego Creek Watershed

Sewage sludge is presently disposed of by spreading and then disking into the soil. However, the pollutants from the disposal areas have been transported during storm flows to Newport Bay. The Regional Water Quality Control Board (Region 8) has issued an order prescribing runoff control requirements for the spreading and disking sites. The Early Action Program focuses on controls for surface runoff from these sites tributary to San Diego Creek (and Newport Bay). This can be accomplished by a regulatory effort by the Regional Board which includes enforcing and modifying current orders at two sites and prescribing new requirements for control of runoff at another site.

Dairy Waste Management - Riverside and San Bernardino Counties

Dairies in the Chino Basin produce manure and wastewaters which add significant quantities of salts, nitrates and other pollutants to surface and groundwaters in the Santa Ana River Basin. The local return of the wastes to the land, as was practiced in earlier times, is not an acceptable solution because the extremely high number of animals concentrated in a limited area produce much more manure than can be usefully applied. The Early Action Program focuses on an institutional structure controlled by the dairy industry which could carry out a management plan. Public and private agencies are being investigated for the most effective management organization.

A brief discussion of the four water quality problems which were studied but did not meet the criteria for Early Action follows:

Impacts of Water Conservation on the Hyperion Treatment Plant:
- City of Los Angeles

The only serious problem at the Hyperion Treatment Plant associated with water conservation has been the continual failure to meet the effluent BOD (biological oxygen demand) standards for the five-mile ocean outfall. The most effective solution would be increasing the secondary treatment capacity; however, operational changes to Hyperion at this time would be ineffective and/or too costly. It is difficult to establish cost-effectiveness in light of the imminent conversion to full secondary treatment.

Nutrient and Sediment loads to Lake Sherwood - Ventura County


Lake Sherwood is a privately owned recreational lake which suffers from excessive algae, mosquitos and silt, as well as fish kills. During the current drought, water levels have dramatically lowered, compounding water quality problems further. However, the owners of Lake Sherwood have already initiated a monitoring and research program to abate the water quality problems, independent of the 208 program, and no further work can be done under the Early Action Program.

High total dissolved solids in the groundwater above Prado Dam -
- Santa Ana River Watershed

Several groundwater sub-basins above Prado Dam contain water with excessive dissolved solids. However, the impact of any proposed physical solution has caused this matter to move much more slowly than was originally hoped and intended, and formal action will not be ready for inclusion in the Early Action Program Design.

Nutrient Flows to Sulphur Creek Reservoir - Orange County

Sulphur Creek Reservoir, a recreational lake which also provides flood control, is heavily eutrophic. Excessive nutrients exist in the reservoir and continue to enter the reservoir. In the past, Sulphur Creek Channel, which is adjacent to a wastewater treatment plant operated by the Moulton Niguel Water District, has overflowed during rainstorms and has inundated the treatment plant. Mixing of the plant's effluent with the floodwaters resulted in an overflow which discharged to the reservoir, adding additional nutrients. The channel has recently (December 1977) been regraded and accumulated silt and debris removed to prevent additional flooding of the treatment.



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1. Rhodelia Avenue Unsewered Community

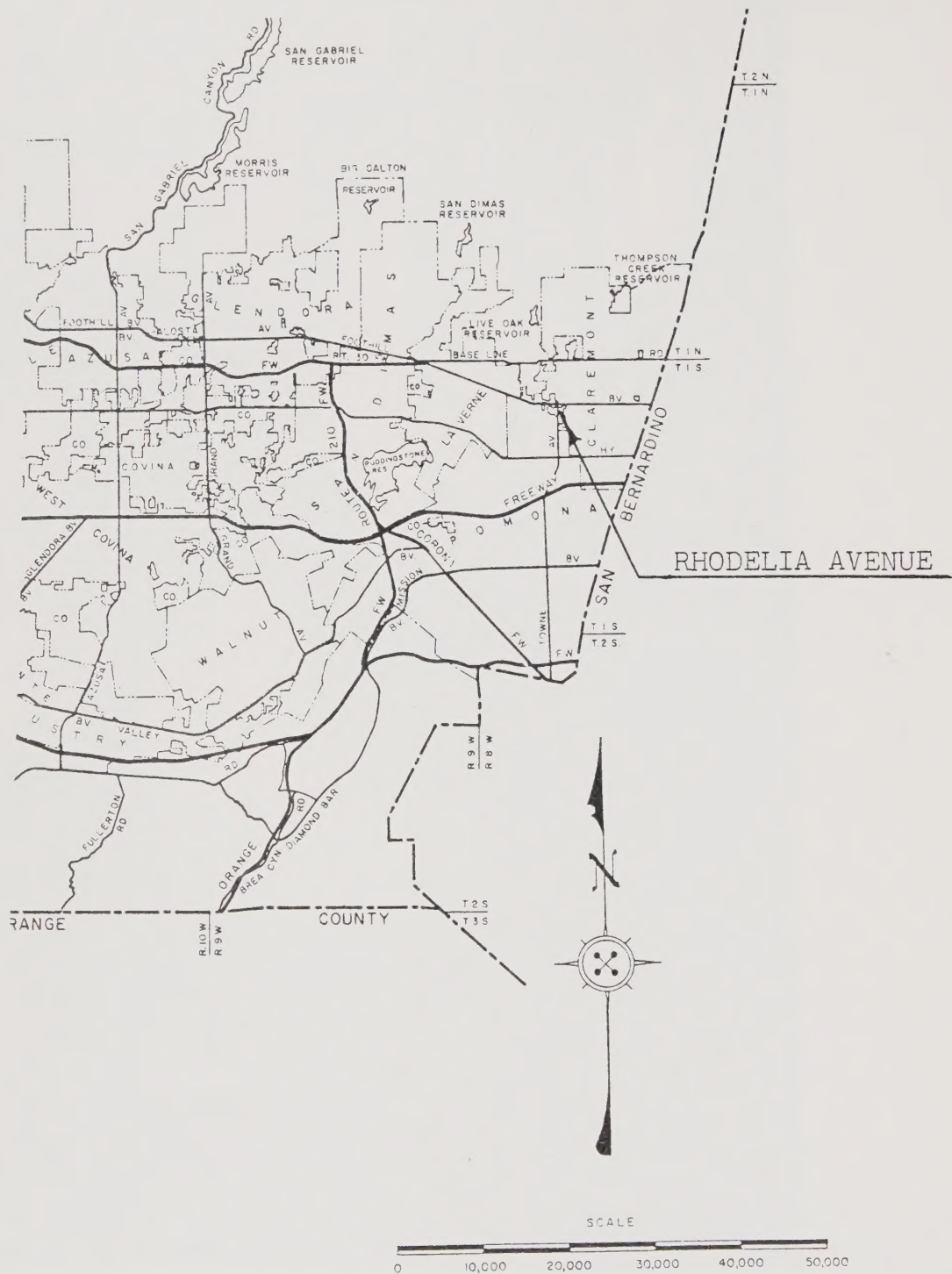


FIGURE 1
LOCATION RHODELIA AVENUE

RHODELIA AVENUE UNSEWERED COMMUNITY

Description of the Problem

In Los Angeles County fifty-one identified communities utilize private on-site wastewater disposal facilities. In many areas, these facilities are performing adequately; however, the number of failing systems is increasing. Some of these unsewered communities are either known to be or are potential contributors to local surface or groundwater quality degradation. Additionally, those with failing systems present a possible health hazard through the occasional overflow of septic tanks and consequent body contact. Some areas may also be affected by earth slippage initiated by the continuing disposal of sewage through underground systems.

Based upon a review of all identified unsewered communities, the Rhodelia Avenue community (south of Baseline Road) was selected for the Early Action Program. This area is an unincorporated residential neighborhood substantially surrounded by the City of Claremont and the City of Pomona, located within the sphere-of-influence of the City of Claremont. The community is approximately 40-acres in area. The present population is 620 and the projected population for 1995 is 650. The general location of the area is shown in Figure 1.

Occasional septic tank overflows have occurred in the Rhodelia Avenue area, presenting possible health hazards through body contact. This periodic overflow condition, which is expected to become worse in time, is attributed to a combination of inadequate maintenance, inadequate leach field systems, poor soils and other factors. Additionally, the Rhodelia Avenue community is situated over the Pomona Groundwater Subbasin where high nitrates occur. The land was formerly used for citrus farming. Excessive fertilization is the alleged origin of the bulk of nitrates; however, use of underground disposal of domestic sewage contributes to substantial accumulation of nitrates in the groundwater.

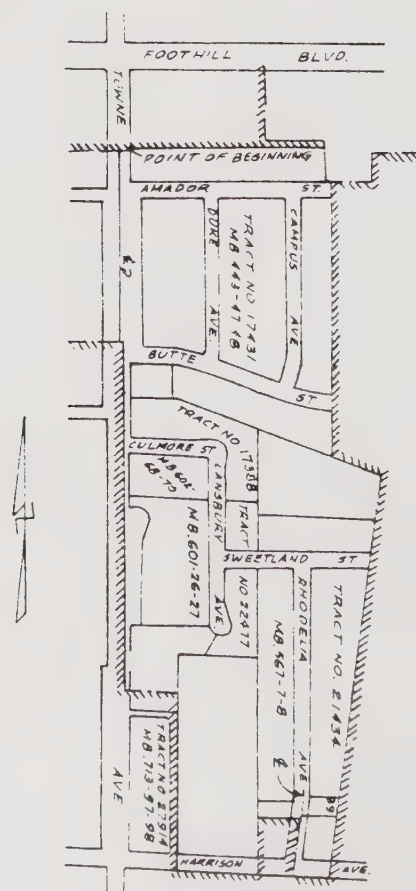
The County Engineer has reported that a study entitled "Groundwater Nitrate Contamination in Claremont, California" by Harvey Mudd College, shows that the closest water well to Rhodelia Avenue area (No. 31) has had nitrate levels measured in 1952 of 5.9 mg/l, which rose to 146.0 mg/l in 1968 and has since leveled off to 89.0 mg/l in 1976. Concentrations above 45 mg/l exceed the Environmental Protection Agency Primary Drinking Water Regulations, and are considered to indicate a polluted water supply. The houses in the Rhodelia Avenue area were built between 1953 and 1956.

In 1975, the County Department of Health Services conducted an investigation of the Rhodelia Avenue project area for the purpose of determining the extent of failing private disposal systems. Investigators contacted 112 property owners, 50 of whom reported problems with their disposal systems. In June of 1975, the County Health Officer recommended that sewers be installed in the area.

The California Regional Water Quality Control Board, Los Angeles Region, in March, 1977, stated that it strongly supported the position of the County Engineer in seeking the sewerage of the Rhodelia Avenue area. The Regional Board pointed out that in addition to the problem of failing subsurface disposal systems, the high nitrate concentrations found in the groundwaters of the area are due in part to the sewage percolated into the ground from private disposal systems. The Regional Board further stated that elimination of these private disposal systems by the installation of sewers would assist in improving water quality in that area of the groundwater basin which provides a portion of the City of Claremont's water supply. In 1975, a majority of the residents in the community signed a petition requesting the formation of an improvement district to install sewers.

Sewering of the community has been held in abeyance due to institutional difficulties surrounding the annexation of the area to the City of Claremont. An application was made in July, 1975, to the Local Agency Formation Commission (LAFCO) for approval to annex County Improvement No. 2548-M to County Sanitation District No. 21. Figure 2 shows the area involved and its relationship to the present Sanitation District No. 21 boundary. In September, LAFCO conditionally approved the annexation to District No. 21 provided that the area first annex to the City of Claremont.

FIGURE 2



The LAFCO staff report to the LAFCO Commission dated September 10, 1975 stated the following:

"...The subject area is within the adopted sphere of influence of the City of Claremont, as well as within the adopted sphere of influence of County Sanitation District 21, and is a portion of an island of unincorporated territory surrounded by the cities of Claremont and Pomona.

The Government Code Section 56003.1 expressly provides that district annexations may be conditioned upon completion of annexation to a city.

In this instance, it appears that the residents of the subject area are enjoying many of the services and the facilities of the City of Claremont without contributing to the provision of such services. They are also affected by the decisions made by the City but have no part in that decision-making process..."

Similar testimony was presented by the City of Claremont.

Annexation to the City of Claremont has not taken place. A large majority of residents in the Rhodelia Avenue community have expressed, through a postcard poll by the City of Claremont (April, 1976 and December, 1976), their opposition to annex to the City. The opposition appears to center on the issue of increased taxes, which would result from annexation. An increase in taxes of approximately 10 percent is estimated. (The City of Claremont presently levies a City property tax.)



Management Strategies

Three alternatives strategies have been explored for the Rhodelia Avenue community, and are described below.

1. Abandonment of the improvement district (and thus sewer-ing) upon request of a majority of the property owners within the district.

This alternative should be rejected on the basis of the following considerations:

- o A petition for the formation of an improvement district to install sewers has already been signed by 61% of the property owners in the area.
 - o The Los Angeles County Department of Health Services has determined that 44.6% of the property owners contacted in a survey conducted in 1975 were experiencing problems with their disposal systems.
 - o The installation of sewers and abandonment of private disposal systems in this area would improve water quality in the portion of the groundwater basin which provides some of the local domestic water supply.
2. Schedule a new hearing with LAFCO and request reconsideration of their condition requiring annexation to the City of Claremont prior to annexation to Sanitation District No. 21 so that the County can proceed with installation of the sewer system.

This alternative was originally recommended by the County Engineer as the most expeditious solution. This recommendation further proposed that SCAG support the project by adopting and approving an appropriate resolution.

The alternative should also be rejected, because it does not solve the institutional questions at hand. The position of LAFCO and the City of Claremont, relating to the fragmentation, duplication and equitable distribution of costs and benefits of public services, are considered important. The application of the "beneficiary pay principle" and abandonment of windfall subsidies also provide equity to all taxpayers and can provide more efficient government. In consideration of these concerns, this alternative would not solve the institutional and equity problems.

3. Annexation of the area to the City of Claremont, with the sewer system designed and installed by the City.

This alternative would resolve the LAFCO condition and concern of the City of Claremont, and would also provide the needed sewers. The residents of the Rhodelia Avenue community would be expected to oppose this alternative. Two methods for annexation exist. The first is by formal election, and the second is by a new procedure provided under A.B. 1533, the Municipal Organization Act of 1977, which is effective January 1, 1978. AB 1533 provides for the annexation of an area by a City, without an election, if certain conditions are met.

A summary of procedures for annexation without election as provided under AB 1533 is presented in Appendix A. The formal election alternative does not appear favorable, since the property owners of the area have indicated, through postcard poll, their opposition to annexation.

Consideration for application of A.B. 1533 can be given since annexation conditions described in A.B. 1533 are met. Furthermore, the City of Claremont has indicated a strong willingness to pursue this course of action.

Recommended Action

For the 208 Early Action Program, it is recommended that the City of Claremont pursue annexation of the Rhodelia Avenue area to the City as provided by the articles of A.B. 1533. Further, it is recommended that concurrent with the A.B. 1533 proceedings that design plans and specifications be prepared either by the County Engineer, or by the City of Claremont through staff or consulting services. Reimbursement of costs for the design and installation would be recoverable, regardless of the alternative, through assessments to affected property owners. Determination of the lead agency for preparation of the plans and specifications, and documentation of other administrative needs, should be made during the first quarter of 1978. The City of Claremont and the County Engineer should confer on this matter with SCAG during this period. Funding for design, purchase and installation should also be agreed upon. A Clean Water Grant for this project should be applied for as soon as the annexation proceedings are completed. Grant eligibility and listing on the State's Project Priority list should also be made as soon as possible. The City of Claremont and County Engineer should petition the Los Angeles Regional Water Quality Control Board to provide this project with high priority.

Should the AB 1533 proceedings fail to result in annexation of the Rhodelia Avenue area to the City, and should LAFCO revoke its City annexation requirement in such case, it is recommended that annexation of the area to the County Sanitation District No. 21 proceed as soon as practicable, and that the County install sewers as soon thereafter as possible.

Good government requires fairness and equity to all residents and taxpayers, and it requires effective environmental management. Whether sewers in the Rhodelia Avenue are needed is not an issue; the consensus of all involved and the facts of the case show that sewers are urgently needed. The issue that has up to now precluded sewerage revolves around governmental efficiency, local versus county control, equity, and other considerations. Pursuing annexation of Rhodelia Avenue area to the City of Claremont through procedures provided under A. B. 1533 would open to discussion the governmental and economic issues surrounding this project, and should, in any event, clear the way for installation of sewers, regardless of the outcome of the A.B. 1533 proceedings. The Board of Supervisors and LAFCO must make a final determination of the annexation question.

Implementation Strategy

Personal communications of the SCAG staff with the City Manager of Claremont indicate that the City staff will recommend to the City Council that it pursue annexation of the Rhodelia Avenue community using the A.B. 1533 strategy. As soon as the City Council grants authorization to proceed under A.B. 1533, the following tentative schedule can begin:

January, 1978 - March 1979 (or before):

LAFCO action, including:

- o Preparation and filing of "Resolution Application" and "Plan" with LAFCO
- o LAFCO issues "Certificate of Filing"
- o LAFCO public hearing and resolution
- o LAFCO approval of proposed amendment to annexation
- o Public hearing determination

February, 1979 - July, 1979:

- o Design of sewers

March, 1979 - July, 1979:

Board of Supervisors action, including

- o Public hearings on annexation
- o Adoption of annexation resolution
- o "Certificate of Completion" by LAFCO
- o Approval of annexation to L A County Sanitation District No. 21

July 1979 (or at conclusion of A.B. 1533 proceedings) -
December 1979

- o Construction bids, contract awards and sewer installation.

Cost estimates for the Rhodelia Avenue Sanitary Sewers are:

(1) Annexation to County Sanitation District #21	\$ 40,000
(2) Engineering and Contract administration	70,850
(3) Construction costs	<u>222,000</u>
Total	\$332,850



2. Management of the Sewage Sludge in the San Diego Creek Watershed Area

MANAGEMENT OF SEWAGE SLUDGE IN THE SAN DIEGO CREEK WATERSHED

Description of the Problem

One of the principal deficiencies of present sludge disposal practices in the San Diego Creek Watershed is the absence of means for controlling surface runoff from sludge storage and disposal areas into surface streams tributary to Upper Newport Bay. The Newport-Irvine Waste Management Planning Agency's (NIWA) two final reports to SCAG on "Management of Sewage Sludge in the San Diego Creek Watershed" (July, 1977 and October, 1977) discussed both short-term sludge management strategies and longer-term regional sludge management alternatives being evaluated in the LA/OMA (Los Angeles/Orange Metropolitan Area) sludge study. By agreement among SCAG, NIWA and LA/OMA staffs, discussion of longer-term regional sludge management alternatives has subsequently been deleted from the Early Action Program Design. The Early Action Program Design has therefore focussed on controls for surface runoff from sludge storage and disposal areas in the San Diego Creek Watershed.

Origin, Nature and Quantities of Sludge Generated

In 1977, sewage sludge handled or disposed of in the San Diego Creek Watershed of Orange County was received at specific sites from the following sources:

<u>Source</u>	<u>Type and Quantity</u>	<u>Receiving Site</u>	<u>Site Utilization</u>
Sanitation Districts of Orange County (Fountain Valley)	80 - 100 tons/day digested & dewatered solids	Golden West Fertilizer Co. Round Canyon	Compost, supplement and haul to market
Irvine Ranch Water District Treatment Plant	700,000 to 900,000 gal/mo. of 1.2% solids	N. of San Diego Fwy in Irvine Bl. 503	Agricultural soil enrichment
Rossmoor Sanitation Inc.	3 tons/day digested & dewatered to 7 to 10% solids	S. of San Diego Fwy, N. of Moulton Pkwy	Agricultural soil enrichment
San Juan Capistrano, to become Southeast Reclamation Authority (SERRA)	100 - 200 Cubic yards/wk. digested & dried to 12% solids	Golden West Fertilizer Co. Round Canyon	Compost, supplement & haul to market

Current Sludge Processing and Disposal Sites

In mid-1977, sewage sludge was being received at three sites within the San Diego Creek Watershed of Orange County (see Figure 3):

1. Golden West Fertilizer Company (Site A). At the mouth of Round Canyon in East Irvine, about 2,000 ft. south-east of Lambert Reservoir, dewatered sludge is received in dump trucks, composted and dried on the ground in open piles, mixed with fillers and hauled in bulk from the premises. About 5,000 cubic yards of composted sludge were delivered from Golden West Fertilizer Company in 1975-1976 to an adjacent site where it was used by Coast Inc. to prepare garden mulch. Bulk loads are sold to builders, landscape contractors and agricultural users, at various Southern California locations within economical hauling distance. No records are kept as to the ultimate points of use, and there is no established pattern of distribution.
2. Irvine Field 503 at Jeffrey Road and Barranca Road (Site B). Liquid sludge from Irvine Ranch Water District is spread by tank truck directly onto unplanted fields for soil enrichment purposes.
3. Irvine Fields 331, 332 and 333, North of San Diego Freeway and Southwest of El Toro Marine Air Station (Site C). Thickened, digested sludge from the treatment plant of Rossmoor Sanitation Inc. is spread directly onto unplanted fields by self-powered tank trucks.

FIGURE 3

SLUDGE PROCESSING SITES AND GROUNDWATER
BASINS IN SAN DIEGO CREEK WATERSHED -
NIWA PORTION OF ORANGE COUNTY-SOUTH
COAST 208 PLANNING AREA



Existing Regulatory Requirements

The State Health Department is now formulating regulations on allowable constituents in sewage sludge, particularly toxic constituents. For each site, the Regional Water Quality Control Board (RWQCB) regulations are as follows:

Site A - Golden West Fertilizer Company on February 24, 1977, the staff of the Santa Ana Regional Board requested Golden West Fertilizer Company to file a Report of Discharge based upon possible discharges during rainy or unusual conditions. At a public hearing on June 24, 1977, it was determined that the firm should file a Report of Discharge, but as of this date, this decision is currently being appealed.

(Discussions with the Regional Board staff indicated that as of January 18, 1978, a Report of Discharge had been filed, and a draft Discharge Order No. 78-35 had been prepared. The order is currently being reviewed and is scheduled for consideration by the Regional Water Quality Control Board, Santa Ana, on March 10, 1978.)

Site B - Irvine Ranch Water District. Order No 76-49 dated April 9, 1976, from the RWQCB to the Irvine Ranch Water District contains the following in relation to sludge disposal, among eight pages dealing with disposal of treated effluent:

"7. IRWD also discharges an average of 50,000 gpd of digested wastewater sludge, (150,000 gpd after treatment plant expansion) to four spreading areas in Blocks 101, 102, 124, 125 and 137, totalling 89.5 acres (36.2 hectares), at a rate of up to 20 tons (dry weight) per acre per year (44.9 metric tons per year)."

"Discharge Specification No. 3 - The discharger shall provide facilities which will contain all wastes from the sludge spreading areas including stormwater runoff resulting from up to a 25-year, 24-hour storm."

Blocks 101, 102, 124, 125 and 137 refer to a local identification system. Sludge spreading in mid-1977 occurred in Block 102 on Field 503, and was to be brought into compliance with Order No. 76-49 by August 15, 1977, according to IRWD. In November, 1977 IRWD was planning to shift its sludge spreading operation to an unspecified field in Block 137 by early 1978.

Site C - Rossmoor Sanitation Inc. - Order No. 74-5 (NPDES CA 0105325) dated May 3, 1974 to Rossmoor Sanitation Inc. contains a standard provision No. 7 as follows with respect to sludge disposal, among seven pages dealing with disposal of treated effluent:

"7. Collected screenings, sludges and other solids removed from liquid wastes shall be disposed of at a legal point of disposal, and in accordance with the provisions of Division 7.5 of the California Water Code. For the purpose of this requirement, a legal point of disposal is defined as one for which waste discharge requirements have been prescribed by a regional water quality control board and which is in full compliance therewith."

"3. The volume and point of disposal of all sludge shall be reported monthly."

It has been learned from the Board's staff that the 1974 requirement to dispose of sludge at a legal point of disposal was a standard condition of NPDES permits at that time. In a current revision which changes the point of effluent disposal and rescinds the NPDES Permit, the sludge disposal terminology is made consistent with that of Order No. 76-49 issued to IRWD.



Current Impacts from Current Sludge Management Practices

A field inspection of the upper San Diego Creek Watershed was made on May 9, 1977 during a rainy period in which 1.15 inches of rain fell at Lambert Reservoir during the preceeding 24 hours. Sites A and B were inspected on foot and were photographed from several viewpoints to show the effects of rainfall upon deposited sludge. Due to muddy roads, it was not possible to enter Site C, but by walking along a nearby railroad roadbed, it was noted that the fields were ponded with rainfall. During intermittent rainfall on May 9, sludge was being received at Site A, but unpaved roads and fields at Sites B and C were impassable to tank trucks. Conditions noted at all three sites are described as follows:

Site A - Golden West Fertilizer Co. - At this site only dewatered sludge is received and stored in relatively deep piles. Local drainage of elutriate from new piles could enter the ground in unpaved areas, but once the sludge is spread in layers for air drying, and after it is mixed with dry materials such as sand and sawdust, there would be little tendency to drain except as a result of direct rainfall on the pile.

Site B - Irvine Ranch Water District - Temporarily relocated San Diego Creek which traverses one corner of the site (Jeffrey and Barranca) was flowing at an estimated 50 cubic feet per second (cfs) on the morning of May 9, 1977. Black sludge-laden water was ponded on the field and a perimeter drainage estimated at 1.5 cfs was entering the creek from one edge of the field. It was apparent that rainfall ponded on the site would carry leachate into underlying formations, and it was noted that minor sheet flow was occurring from the field into the perimeter channel and thence into San Diego Creek. There was a characteristic but not unpleasant sludge odor near the field. Although this and other similar fields are along unfenced public roads, there is no reason for the general public to enter the sludge spreading areas. It is concluded that the only significant effects might be those of the leachate upon crops and of the field runoff upon the quality of surface water in San Diego Creek and Upper Newport Bay. Although ponded runoff may percolate into shallow perched groundwater of relatively poor quality, no public water wells exist in the area. Existing flood protection deficiencies are being corrected by IRWD.

Site C - Rossmoor Sanitation Inc. Partially dewatered, digested sludge is spread directly on unplanted fields which are remote from public roads and have no direct connection to San Diego Creek. Although no of groundwater quality degradation in the vicinity of Site C have been made, it is possible for ponded runoff to percolate into the shallow perched groundwater of the Irvine Basin Forebay. Potential effects include increased ammonia, salinity and COD. No public water supply wells are found near the sludge spreading sites, but isolated irrigation wells are maintained by Irvine Ranch Water District. When protected by dikes (to be called for in revised Order 74-5), there will be no surface water impacts from storm runoff.

Management Strategies

Two short-term alternatives for control of surface runoff from sludge processing/disposal areas are compared in Table 2 and are discussed below.

1. The first choice is to require and implement flood protection at existing sites. In both the composting of dewatered sludge and the spreading of liquid sludge in fields, there were (in May 1977) no apparent provisions for controlling surface runoff from sludge processing or disposal areas. All three sites were in need of flood in need of flood protection. Possible management solutions for each site are discussed in the following paragraphs.

Site A - Golden West Fertilizer Co. The sludge storage and processing area is relatively flat and unimproved, with no provision for containment of runoff from sludge areas. Any significant rainfall causes erosion of piles and washing of sludge solids into local gutters and depressions. Continued rainfall moves these solids into drainage channels and eventually into San Diego Creek. Such solids, having already undergone standard digestion, are reasonably stable and will tend to settle at points of low velocity.

Possible physical solutions include:

- o Compartmentation of the sludge storage and handling area to contain runoff within dikes, for later absorption into the ground.
- o Construction of a major retention basin to intercept unavoidable runoff to be used for on-site spray irrigation in dry weather, followed by recovery and drying of the solids.
- o Covering of major sludge storage areas to reduce washing of sludge from the site.

Site B - Irvine Ranch Water District (Field 503). Inspection of the current spreading site on June 1, 1977, showed no dikes, dams, or structures to contain the 24-hour runoff from a 25-year frequency storm, as called for in Regional Board Order 76-49. However, engineering of the site has been completed and IRWD (on July 8, 1977) proposed to restrict spreading to an area to be enclosed within temporary dikes of 7 feet maximum height by August 15, 1977. By the end of 1977, the spreading operations are to be moved to a more level site requiring less embankment.

Site C - Rossmoor Sanitation Inc. (Field 331, 332, 333). These fields are relatively level and are already partly contained by existing railroad and freeway embankments. The Santa Ana Regional Board advises that its requirements are being revised to include the same runoff protection as in order 76-49. Thus, dikes, dams, or structures may be used to contain the 24-hour runoff from a 25-year storm.

Such a consolidation appears feasible since the major portion of Orange County sludge is now being processed by composting at the Golden West Fertilizer Company site in Round Canyon. All sludge sources in Orange County are reasonably close to this site. Composting for local solid enrichment benefits the county in that it requires minimum energy consumption and makes efficient use of natural resources.

Thus, if present application of sludge to land is judged unacceptable, the most logical short-term alternative appears to be central composting. However, if planned improvements in existing spreading practices are made, it is likely that land application will remain an acceptable use in future years.

Recommended Action

The recommended action involves exercising strict control over rainfall runoff from existing sludge spreading and composting sites tributary to San Diego Creek and Newport Bay in the NIWA area. This should include a schedule which assures completion of facilities before December 1 of the year in which sludge is being applied to the surface of active fields.

Implementation Strategy

The implementing agency for the following actions is the Santa Ana Regional Water Quality Control Board.

1. Enforce Order 76-49, to achieve containment of a 24-hour rainfall of 25-year frequency without carrying deposited sludge from the premises.

Since the original inspection in May 1977, the IRWD spreading site has been moved to a new parcel within the approved area. At an estimated cost of \$20,000 for runoff containment, this site is to be ready for use in December 1977. This rotation was anticipated by the Regional Board and has been done with the knowledge and approval of its staff. The action is proceeding under an existing order, heading only timely inspection by the Board's staff to ascertain that the facilities will be in place according to the agreed upon schedule (but not later than January 1, 1978).

2. Modify Order 74-5 to be consistent with Order 76-49 with respect to containment of surface runoff from a sludge spreading site near El Toro Marine Air Station. Incorporating the following section of Order 76-49 into Order 74-5 would make the two orders consistent:

"The discharger shall provide facilities which will contain all wastes from the sludge spreading areas, including stormwater runoff resulting from up to a 25-year, 24-hour storm."

(It should be noted that the name, "Rossmoor Sanitation, Inc.", has been changed to "Laguna Hills Sanitation, Inc.", and that Order 74-5 has since been superseded by Order 77-100, adopted November 18, 1977. This Order now includes a finding that sludge will be injected below ground surface, but requires surface mixing and runoff containment for areas in which surface application may be used. Thus, the recommended institutional action described above has been taken, but actual construction of runoff containment facilities will not occur unless surface spreading is resumed.)

3. Prescribe requirements or establish guidelines for control of runoff from sludge composting operations such as the Golden West Fertilizer facility. Such requirements might be phrased as follows:
 - a. Drainage from wet sludge shall be contained by suitable grading or peripheral dikes.
 - b. Wet sludge shall not be stored over groundwater aquifers usable for domestic or agricultural water supply. (Discussions with the Regional Board staff in January, 1978 indicate that a strict interpretation of this proposed requirement could adversely impact current sludge disposal operations. More information is needed before a conclusion regarding the necessity of the requirement can be reached.)
 - c. Solids of sludge origin shall not be carried to surface water-courses by runoff from the site.

Estimated facilities' cost to meet such requirements could vary from \$10,000 to \$50,000, depending upon the extent and permanence of construction chosen by the operator. Although the Regional Board has requested Golden West Fertilizer Co. to file a Report of Waste Discharge, the owner contends that no waste is being discharged and the processing operation is not subject to requirements. Until a finding is made that a waste discharge is existing or threatened, supported by sufficient factual evidence, there may be a delay of several years in controlling the quality of runoff from the site. Ideally, if significant wastes are found in site runoff during a 1977-78 storm, requirements should be established in the spring of 1978, and construction of necessary facilities should be completed by December 1 of the 1978-79 rainy season.

NOTE: Because of the time lag between preparation of the original report on sewage sludge management, and the preparation of the Early Action Program Design (a period of about 6 months), most of the actions recommended several months ago in the Early Action Program for implementation have already been carried out. Discussions with Regional Board staff, indicate that as of January 18, 1978, the following actions (which essentially comply with the implementation strategy discussed above) have been implemented:

1. Facilities for containing 4.5 inches of rainfall in a 24-hour period are in place on all three sites. Temporary dikes have been constructed at the Golden West Fertilizer Co. (site A) and at the Irvine Ranch Water District (IRWD) (site B) operations. Permanent facilities are planned for both sites. Recent rainfall has caused some failures in these temporary facilities, which are being remedied. As notes above, runoff containment facilities are not now required at the Rossmoor Sanitation, Inc. (site C) operation, due to sub-surface injection of sludge being carried out under Discharge Order No. 77-100.
2. Discharge Order No. 74-5 has been superseded by Order 77-100, adopted on November 18, 1977 as stated above. This action essentially removes the inconsistency (with respect to containment of surface runoff) between Discharge Order 76-49 in force for IRWD and Order 74-5 in force for Rossmoor Sanitation, Inc.
3. Discharge Order No. 76-49 for IRWD already contains provisions equivalent to requirements 3(a) and 3(c) of the implementation strategy as does the draft Discharge Order No. 78-35 currently under consideration for the Golden West Fertilizer Co. operations. As previously notes, item 3(b) (prohibiting storage of wet sludge over aquifers) will require further study to determine if such a requirement is needed for current operations.



3. Management of Dairy Wastes in the Ontario—Chino—Corona Area

MANAGEMENT OF DAIRY WASTES IN THE ONTARIO-CHINO-CORONA

Description of the Problem

The metropolitan areas of Los Angeles, Orange, San Bernardino and Riverside Counties are supplied with milk that comes largely from dairies in the Chino Basin. Manure and dairy wastewaters in this area cause pollution of surface streams by adding bacteria, suspended solids and biochemical oxygen demand, and they degrade the groundwater by increasing the concentrations of nitrate and total dissolved solids. The local return of the wastes to the land, as was practiced in earlier times, is not an acceptable solution, because the extremely high number of large animals, (163,500 milking cows) concentrated in a relatively limited area, produce much more manure than can be usefully applied. It is because of this density of animal population that serious effects on the groundwater are occurring, in comparison with a relatively minor effect under the conditions that existed a few decades ago.

The problem of solid and liquid wastes from the dairies has some unique features. In addition to the complex technical aspects, there are problems in defining and establishing an institutional structure to carry out a management plan. In the past, attempts to solve the pollution problem by individual dairymen have left conditions in a very unsatisfactory state in the opinion of the Regional Water Quality Control Board, Santa Ana Region. Some dairymen have succeeded in commercializing the manure from their herds, but the present market is so limited that it cannot absorb more than a fraction of the total manure produced. A dairyman who is successful in preempting a portion of the market precludes another from doing likewise. The basis for addressing solutions within the 208 Program relative to dairy waste problems is that of institutional arrangements. Several institutional alternative solutions are available and are discussed below.

Management Strategies

1. This option is the drastic one of evacuation of the industry to some other location. It is possible that general economic factors may eventually cause dairies to move elsewhere, but a forced evacuation under present conditions would involve socio-political costs too extreme to be seriously considered.

2. One type of organizational system that might be used to deal with the dairy wastes is a private corporation owned by the dairymen. Milk producers' cooperatives are in existence, which possibly could play a role. However, one overall organization is necessary which would at least require the cooperation in which the individual dairymen would hold shares directly, something like a mutual water company, and the shares of stock would be transferable. A stockholder would be entitled to discharge manure/wastewater in proportion to his holdings. Operating costs would be based upon either measurements of the wastestream, or, perhaps better, on the number of animals on the property served. The number of equivalent number of animals should be defined in a way that would provide the best estimate of waste volume, or of the pollutant load in the wastestream. Within a certain area, to be defined, a share of stock would represent a certain solids and flow entitlement regardless of location. If the entitlement per share varied with the location, as for example, with distance from a treatment plant, then some dairies would have a windfall if the treatment plant site happened to be chosen near to them, whereas others would need to lay their own pipeline to reach the joint wastewater system.
3. Another type of organizational system is a public agency which could be controlled by the dairymen. There are several kinds of public agencies that could perform the dairy waste management function: sanitary district, water district, municipal service district, public utility district and others. A sanitary district, for example, would have the power to take all necessary action to deal with both solid and liquid wastes. Alternatively, an improvement district could be established as part of an existing public entity such as a municipal water district. Or possibly, it may be that the waste treatment and disposal facilities would serve more than one public agency.





Recommended Action

The Dairy Environmental Committee, the Santa Ana Watershed Project Authority (SAWPA), and the Counties of San Bernardino and Riverside have agreed that it is necessary to establish an institutional structure which is controlled by the dairy industry to manage dairy wastes in the Ontario-Chino-Corona area. The following actions are recommended in order to gain public approval of such an organization:

1. Study the organizational alternatives to determine whether the management agency should be public or private, what specific type of agency, and cost estimates.
2. Complete preliminary documentation and approval, including definition of agency boundaries, appropriate legal actions and posting of notices to the public.
3. Implement the recommended organization and the petition process.
4. Present petition before LAFCO, appear before the County Board of Supervisors for final approval, and place the recommended organization on the November, 1978 ballot.
5. Define the level and persistence of the mineral pollution, determine the quality and quantity of both liquid and solid wastes, study options for treatment, perform a preliminary market audit, and analyze the salt balance.

Implementation Strategy

The preliminary work plan and schedule, outlined below, lead ultimately to the November, 1978 election where the outcome of a recommended dairy waste management organization will be decided by the public. The involved agencies and the distribution of initial responsibilities are indicated in parenthesis.

Present - February, 1978:

- o Initiate the sampling program and technical study (SAWPA - 85%; Dairy Environmental Committee - 15%)
- o Study the organizational alternatives (Dairy Environmental Committee - 85%; SAWPA and the Counties - 15%)

February, 1978 - March, 1978:

- o Complete preliminary documentation and approval, post notices to the public (Dairy Environmental Committee - 85%; SAWPA and the Counties - 15%)
- o Continue technical study

March, 1978 - May, 1978:

- o Implement recommended organization and Petition Process (Dairy Environmental Committee - 85%; SAWPA and the Counties - 15%)
- o Continue technical study

May, 1978 - August, 1978:

- o Secure final approval with LAFCO and County Board of Supervisors (Dairy Environmental Committee - 85%; SAWPA and the Counties - 15%)
- o Complete technical study

November, 1978:

- o Election of recommended dairy waste management organization.

Preliminary cost estimates for the various stages in the work plan are:

(1) Study the organizational alternatives	-	\$ 6,000
(2) Preliminary documentation	-	8,000
(3) Maps	-	3,000
(4) Implement recommended organization	-	16,000
(5) Final approval	-	3,000
(6) Election costs	-	10,000
(7) Technical study	-	96,000
Total		<u>\$142,000</u>

Funding sources include the Counties of San Bernardino and Riverside (staff time), SAWPA (about \$20,000), local industries (about \$22,000) and possibly the State and Federal government (about \$100,000) from 201 or 208 grant funds for the technical study (dependent upon findings to be made regarding eligibility and priority).

APPENDIX A

A Summary Digest of Assembly Bill 1533

Relating to Procedures for Annexation Without Election

APPENDIX A

The Municipal Organization Act of 1977

The Municipal Organization Act of 1977, effective January 1, 1978, provides for annexation of certain territory to an existing city, without election by residents of the territory.

California Government Code Section 35013 shall provide that a local agency formation commission may authorize the annexation of territory to a city--without an election--where the territory in issue:

- (a) Does not exceed 100 acres in area and such 100 acres constitutes the entire island.
- (b) Is (1) surrounded or substantially surrounded by the City to which the annexation is proposed, or by such city and a county boundary or the Pacific Ocean; or (2) surrounded by a city and adjacent cities.
- (c) Is substantially developed or developing according to commission findings.
- (d) Is not prime agricultural land according to California Government Code Section 35046.
- (e) Is found by the commission to be benefitted, now or in the future, from the annexing city.

As a general rule, territory may not be annexed to a city unless it is located in the same county as the annexing city, and is contiguous to the city at the time preliminary proceedings are initiated pursuant to the Municipal Organization Act. (See California Government Code Section 35011). Actual annexation proceedings are to be carried out by the board of supervisors of the county in which the territory to be annexed is located, once the local agency formation commission authorizes such annexation (California Government Code 35031 (c)).

There are two important limits on the application of California Government Code Section 35013 authorizing territorial annexations without election. Section 35014 states that the authority to initiate, conduct, and complete any annexation without an election:

- (1) Shall not apply to any territory which, after January 1, 1978, becomes surrounded or substantially surrounded by the city to which annexation is proposed; and
- (2) In any case, such annexation power shall expire January 1, 1981. Proceedings for annexation without election are to be initiated by a "resolution of application", directed to the local agency formation commission from the legislative body of the city seeking to annex the territory in issue. The "resolution of application" should simply set forth:
 1. The request for annexation.
 2. A description of boundaries of the affected territory accompanied by a boundary map.
 3. Reasons for the proposed annexation.

(See California Government Code 35110)

Along with the resolution, the affected city should submit a Plan for providing public services to the territory after annexation, which would include:

1. Description of services to be offered.
2. The level and range of services offered.
3. An indication of when such services shall be extended to the affected territory.
4. An indication of any improvement or upgrading of structures, roads, sewer or water facilities.
5. How the proposed services will be financed.
6. Conditions which the city would impose or require incident to annexation.
7. Other information which the local agency formation commission may require on a case by case basis.

(See California Government Code Section 35102.) The resolution and plan are to be submitted to the executive officer of the local agency formation commission for preliminary action.

The Commission is empowered to review and approve or disapprove the proposal. It may approve the proposal in whole or in part, with or without amendment. (California Government Code Section 35150(a)). The Commission's authorization for annexation proceedings without election must be the product of a public hearing with adequate notice. If the criteria for annexation cited above are satisfied. The Commission may authorize the affected city to go ahead with annexation proceedings under the Municipal Organization Act of 1977. (See California Government Code Section 35150(f).)

It should be noted that all proper expenses incurred in the annexation proceedings listed above shall be paid by the city to which the territory is annexed, absent a contrary agreement between the Board of Supervisors and the proponents of annexation. (See California Government Code Section 35402.)

The process of territorial annexation without election under California Government Code Section 35013 is basically a four-step process. First, a city proposes to annex certain territory. Second, the local agency formation commission evaluates the suitability of the city's request. Third, the Board of Supervisors in the county within which the petitioning city is located holds public hearings on the commission authorized annexation. Fourth, the Board of Supervisors orders or rejects the annexation petition without an election of residents in the territory. All things being considered, the entire process could take as long as fourteen months to complete.

NOTE

California Government Code Section 35046 defines "prime agricultural land" as:

.... an area of land, whether a single parcel or contiguous parcels, which -

(i) has not been developed for use other than agricultural use and (ii) meets any of the following qualifications:

- (a) Land which qualifies for rating as class I or class II in the Soil Conservation Service land use capability classification;
- (b) Land which qualifies for rating 80 through 100 Storie Index Rating;
- (c) Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by United States Department of Agriculture in the National Handbook on Range and Related Grazing Lands, July, 1967, developed pursuant to Public Law 46, December, 1935;
- (d) Land planted with fruit or nut-bearing trees, vines, bushes or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars (\$200) per acre;
- (e) Land which has returned from the production of unprocessed agricultural plant products in annual gross value of not less than two hundred dollars (\$200) per acre for three of the previous five years.
- (f) Land which is used to maintain livestock for commercial purposes.

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